

Title: Hernia mesh-device with incorporated local anesthetic

Cross reference to related application:

This application claims priority to U.S. Provisional Application Ser. No. 60/448,510, which was filed on Feb. 21, 2003.

Background of the invention:

There are many types of mesh patches or devices used for the repair of hernia defects. Examples of mesh-devices include, but are not limited to, polypropylene mesh (Marlex, Bard's Perfix Plug & Patch, Ethicon's PHS, USSC's Surgipro), PFTE (polytetrafluoroethylene), Alloderm (Lifecell), and Surgisis (Cook). Since the introduction of mesh materials in hernia repairs, the recurrence rates have decreased to acceptable levels. Postoperative pain, however, remains a considerable problem after hernia surgery. With recurrence rates being low, postoperative pain accounts for most of the morbidity associated with hernia repairs.

Summary of the invention:

The hernia mesh, of which there are several types, contains local anesthetic equally distributed along its surfaces. After being placed into the patient's body space, the mesh releases a local anesthetic from reservoirs within the mesh at a nearly constant amount per unit time. The anesthetic is released for a predetermined duration, thereby reducing or eliminating any postoperative pain. The reservoir can be composed of membrane materials, such as ethylene-vinyl acetate copolymers, that control the rate of anesthetic delivery. The anesthetic can also be contained in an acrylic based polymer adhesive with a resinous cross-linking agent to provide a continuous source of anesthetic. The anesthetic can also be distributed evenly within the mesh material itself, not contained in reservoirs and released as described above.

Brief description of the drawing:

Fig. 1a shows a top-view of a mesh-device containing reservoirs of local anesthetic.
Fig. 1b shows a bottom-view of a mesh-device containing reservoirs of local anesthetic.
Fig. 1c shows a mesh-device with embedded anesthetic within the mesh material.

Description of the invention:

This invention involves a mesh-device used to surgically repair a hernia. In particular this mesh contains a local anesthetic medicine embedded within the mesh, to be released post-operatively for maximal postoperative analgesia. Examples of local anesthetics include, but are not limited to, lidocaine (xylocaine), bupivocaine (Marcaine), and ropivacaine (Naropin).